Panasonic
ideas for life

Memory Card Camera Recorder
# AG-HMC80 series
(AG-HMC81/HMC82/HMC83/HMC84)

# AVCCAM

## DV/AVCHD Recording on an SD Memory Card
## All with Shoulder-Mount Stability

* SD Memory Card not included

Bundled* with
**EDIUS Neo 2 Booster**
nonlinear editing software
* Limited time offer. The package model number is the AG-HMC80U series.

AVCHD ™ DV DOLBY DIGITAL STEREO CREATOR HDMI SDHC

**AVCCAM 3-Year Warranty Repair Program***
* AG-HMC80 series users qualify for a 3-year warranty on repairs.
Visit the website for details: <www.panasonic.biz/sav/pass_e>

The AG-HMC80 allows you to record in DV or in AVCHD for Full-HD image quality.
The versatility of the manual functions meet the needs of many professionals.

# This shoulder-type AVCCAM opens up a new world of video production

### Snow Covered Mountain

The ruggedly durable SD Memory Card allows the AG-HMC80 series to withstand even harsh conditions with widely changing temperatures.

### Newsgathering for TV and Newspaper Websites

The shoulder pad keeps the camera steady and minimizes blurring even when your footing is unstable.

### Weddings and Events

The Focus Assist function with face detection capability makes sure that you capture those all-important scenes.

### Student Video Production

The Manual Focus Ring lets you adjust the iris and zoom by hand, putting you totally in charge of the shot.

## SD Memory Card Recorder: Lower Operating Costs, Better for the Environment

### SD Reduces Total Cost of Ownership

(1) Faster, easier editing because digitization is not necessary
(2) Lower media costs because memory cards are reusable
(3) Lower maintenance costs because there is no moving mechanism

By reducing editing, media and maintenance costs, AVCCAM can help improve your bottom line. Users can also take advantage of a special 3-year free-repair service program that Panasonic offers for AVCCAM equipment.

### The SD Memory Card Helps Preserve the Environment with its Reusability and Low Power Consumption

The SDHC/SD Memory Card media for the AVCCAM camera recorder is totally free from abrasion and dropout. There is no drive mechanism required, as there is for tape and disc-based recorders, so power consumption is low and size and weight are reduced. Malfunctions are less likely to occur, and there is no need to replace heads or transport components. This translates into lower costs and easier maintenance, greater energy savings, and less waste when the unit is eventually disposed of. All of these features help to conserve the environment.

- 1/4.1 type 3.05-megapixel, progressive 3MOS sensors
- AVCHD (Full High-Definition) and DV (Standard Definition) recording
- 12x optical zoom lens with Optical Image Stabiliser (OIS), and manual focus ring
- Tapeless recording with the reliable, efficient SD Memory Card
- Shoulder-mount style for stable recording
- Versatile Interfaces include XLR audio input, HDMI output, USB 2.0*1 and DV terminal*2 (IEEE 1394 standard)

*1: AVCHD mode only.
*2: DV mode only.

## DV

**DV recording for conventional standard definition production use**

The standard-equipped DV terminal lets you use your existing equipment.

## AVCHD

**The AVCHD recording for shooting pro-style videos in Full-HD quality**

The HDMI terminal lets you instantly monitor Full-HD images.

## A shoulder pad for extra shooting stability

- Images are recorded with little blurring
- Excellent mobility allows nimble shooting
- Fatigue is minimal even after shooting for hours

## Superb Full-HD Image Quality

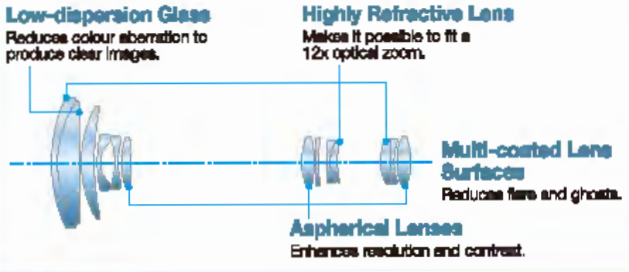
# A Wealth of High image quality Functions for the Age of Full-HD
# Precise Tuning Lets You Express Images Exactly as You Intend

Sharp, Crisp Rendering of Every Subject

### New HD Lens

Featuring 13 elements in 10 groups, the newly developed lens is ideal for Full-HD recording. The new lens system uses low-dispersion glass and aspherical lenses to reduce colour aberration and boost resolution. Use of a special multi-coating process dramatically reduces flare and ghosts. The result: sharp, crisp, beautifully rendered pictures with vivid colours, delicate nuances, and exceptional shading. This advanced lens also lets you capture 40.8mm wide-angle shots (35mm lens equivalent).

**HD Lens Unit (13 Elements in 10 Groups)**


Low-dispersion Glass
Reduces colour aberration to produce clear images.
Highly Refractive Lens
Makes it possible to fit a 12x optical zoom.
Multi-coated Lens Surfaces
Reduces flare and ghosts.
Aspherical Lenses
Enhances resolution and contrast.

Up to 120x Zoom Power

### 12x Optical Zoom and 10x Digital Zoom

Even at the 490mm zoom setting (35mm lens equivalent), this advanced 12x optical zoom lens is free of image degradation. And the AG-HMC80 series is also equipped with a digital zoom that instantly magnifies the image by any of three fixed values: 2x, 5x or 10x. Use it together with the 12x optical zoom lens, and you get super magnification equivalent to a 120x zoom, without the drop in light intensity that happens when using a lens extender.

* The image quality decreases as the digital zoom magnification increases.

Image with wide-angle

Image with a 12x optical zoom

Image with a 12x optical zoom x 10x digital zoom (120x)

Take Clear Shots While Walking or Zooming

### Optical Image Stabiliser (OIS)

Because the hand-shake correction is done by actually driving the lens, there's none of the image degradation that occurs with electronic stabilisation. You can capture beautiful, high-quality shots even in situations where hand-shake is typically a big problem – such as when zooming, shooting indoors in dim lighting, or shooting outdoors at night.

* Hand-shake from strong vibrations may remain. Also, visible differences may be slight under some conditions.

Image with OIS OFF

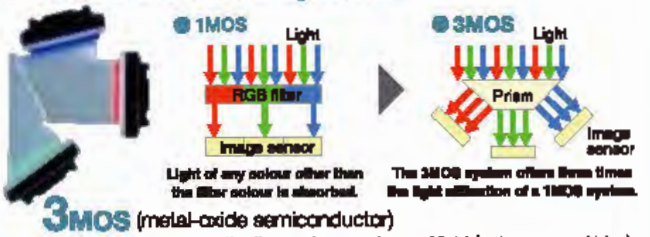
Image with OIS ON

Highly Nuanced Image Expression

### 3.05-megapixel Progressive 3MOS Sensors

The progressive 3MOS image sensors record Full-HD images with a total, 3.05-megapixel (approx.) resolution [effective motion-image resolution of 2.51 megapixels (approx.)]. This produces full-raster HD images with high resolution and superb image quality. Because each of the three separate image sensors receives one of the three primary colours of light (red, green and blue), they render more precise images and more faithful colours than the single light-receiving 1MOS sensor.

#### What's the 3MOS System?




**3MOS** (metal-oxide semiconductor) image sensors process the three primary colours of light (red, green and blue).

#### High-quality, Full-HD Image Production

Full High-Definition is approx. 6 times the screen resolution of Standard Definition images. It displays stunning, high-resolution images.

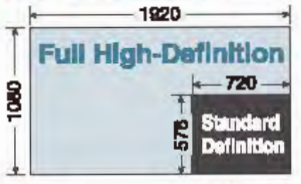


Image in Standard Definition

Image in Full High-Definition

Suppresses Blocked Shadows and Blown Highlights

### Dynamic Range Stretch (DRS)

A gamma curve and knee slope are estimated to match the contrast of each pixel, and applied in real time. When dark, bright, and intermediate shades are all contained in the same scene, this produces excellent gradation for each shade and minimises blocked shadows and blown highlights. The images that result are enhanced by a visually wider dynamic range.

#### Images with the Dynamic Range Stretch (DRS) Effect

Image with DRS OFF

Image with DRS ON

Blown highlights are suppressed.

Blocked shadows are suppressed.

High-quality Digital Stills

## Still Shots with 10.6-megapixel Resolution (approx.)

The new 3MOS sensors also combine with Panasonic's proprietary Quad-Density Pixel Distribution technology to achieve a resolution that is equivalent to 4 times the normal level. The AG-HMC80 series captures still images with approx. 10.6-megapixel resolution (in still image mode, 3:2 aspect ratio), which approaches the level of a high-performance digital still camera. For example, you can use it to shoot both motion and still images for a website.

* The AG-HMC80 series is not equipped with a flash function. The digital zoom cannot be used.
* Still shot is not available in DV mode.

Highly Detailed Image Composition

## Advanced Pro Tuning Functions

**●Matrix settings**

Lets you choose basic colour hues that convey the desired overall image mood.

| | |
|---|---|
| NORM1 | For colours suited to shooting outdoors or under halogen lights |
| NORM2 | For colours more vivid than NORM1 |
| FLUO | For colours suited to shooting indoors under fluorescent lights |
| CINE-LIKE | To reproduce colours similar to those in cinemas |

**●Knee point settings**

Controls the highlights within the frame. (AUTO/LOW/MID/HIGH)

**●Adjustable H detail level, V detail level, detail coring and skin detail**

Corrects edges and removes image noise.

**●Adjustable chroma level, chroma phase, colour temp and master pedestal**

Sets the basic levels for brightness and other signals.

**●Two scene files**

The AG-HMC80 series can save two sets of camera settings as scene files for instant recall later in similar shooting conditions.

Cine-like Gamma Curves

## 7-mode Gamma for Richer Gradation

Drawing on technologies developed for the VARICAM HD camera recorder for digital cinema, Panasonic has equipped the AG-HMC80 series with advanced gamma functions that address seven different shooting scenarios and enhance your creative abilities. This includes the cine-like gamma, which produces the characteristic warm tone of film recordings.

Image with VIDEO GAMMA

Image with CINE-LIKE GAMMA

### AG-HMC80 series Gamma Modes

| | |
|---|---|
| HD NORM | Suitable for HD recording |
| LOW | Works to flatten out a high contrast scene |
| SD NORM | Normal setting for SD (This was available in the DVX100 series.) |
| HIGH | Expands the tone of dark parts and makes a brighter image. The contrast softens. |
| B.PRESS | Makes the contrast sharper than LOW |
| CINE-LIKE D | The Cine-like mode shifted to prioritise dynamic range |
| CINE-LIKE V | The Cine-like mode shifted to prioritise contrast |

## High-quality Recording Technology

# Extended Video Recording on an SD Memory Card Supporting Both DV Mode and AVCHD Mode

### ■ AG-HMC80 series recording format

| HD Recording Format | |
|---|---|
| 1080 | 1080/50i |
| 1080 (only PH mode) | 1080/25p |
| 720 (only PH mode) | 720/50p, 720/25p |
| **SD Recording Format** | |
| 576 | 576/50i, 576/25p |

### ■ AG-HMC80 series recording mode and recording time

| Recording Mode | | Image Size (H x V) | Bit Rate | Max. Recording Time with a 32GB* SDHC Memory Card |
|---|---|---|---|---|
| AVCHD | PH Mode | 1920 x 1080<br>1280 x 720 | Approx. 21 Mbps (Average), Max. 24 Mbps | Approx. 180 minutes |
| | HA Mode | 1920 x 1080 | Approx. 17 Mbps (Average) | Approx. 240 minutes |
| | HG Mode | 1920 x 1080 | Approx. 13 Mbps (Average) | Approx. 320 minutes |
| | HE Mode | 1440 x 1080 | Approx. 6 Mbps (Average) | Approx. 720 minutes |
| DV Mode | | 720 x 576 | Approx. 25 Mbps (Average) | Approx. 128 minutes |

* A Class 6 or higher SDHC or SD Memory Card is required for DV recording. A Class 4 or higher SDHC or SD Memory Card is required for PH and HA recording. Use a Class 2 or higher SDHC or SD Memory Card for other modes. (Panasonic SDHC or SD Memory Cards are recommended.)

High-end AVCHD Image Quality

## High Bit Rate of the Pro-use PH Mode

The AG-HMC80 series features the image-enhancing PH mode that Panasonic developed exclusively for AVCCAM camera recorders. It delivers a maximum AVCHD bit rate of 24 Mbps (average: 21 Mbps). Designed for professional image production, this mode lets you record 1080/25p and 720 progressive images in addition to 1080/50i from the AG-HMC80 series's 1920 x 1080 full-raster HD images.

## AVCHD Format for High-quality, Efficient HD Recording

This format complies with the latest H.264 motion image compression standard, and employs the High Profile standard to improve compression efficiency. Featuring twice the compression efficiency of HDV (MPEG-2), the AG-HMC80 series achieves extended HD recording.

### ■ MPEG-4 AVC/H.264 Technologies

- Intra-frame Prediction
- Variable Block Size Motion Compensation
- Loop Filter Prevents the Propagation of Compression Distortion
- New Entropy Encoding 'CABAC'

### ■ Comparison of HD Recording Formats

| | HDV | AVCHD |
|---|---|---|
| Pixel (H x V) | 1440 x 1080 | 1920 x 1080 |
| Compression Method | MPEG-2 | MPEG-4 AVC/H.264 |

Image in HDV

Image in AVCHD (PH mode)

Standard Definition Image Quality Recording

## DV Compression Recording Supported

In addition to AVCHD recording, the AG-HMC80 series provides DV recording thanks to the application of a number of P2 HD based technologies to this shoulder type AVCCAM. This means that you can continue using your present editing system just as it is. Images are recorded onto an SD Memory Card, for greater efficiency than conventional tape-based recording.

Ease, Efficiency, Reliability

## Large-capacity SDHC Memory Card

Unlike with videotape, there's no need for cueing with the SDHC Memory Card because recording automatically begins in a blank section of memory. Nor do you have to worry about accidentally recording over important footage. You can delete unwanted clips instantly right on the spot to preserve memory capacity. Editing after shooting is smooth and easy, with no need for digitising. The tiny SDHC Memory Card is durable, too. Its operating range is from -25°C to 85°C, so you can stop worrying about harsh temperatures or condensation and just concentrate on your shooting. And of course, you never have to worry about problems with dropouts or clogged heads.

- Using the high compression efficiency of the AVCHD format, up to 720 minutes of HD data can be recorded onto a single SDHC Memory Card.
- Combined with a maximum data transfer speed of 22 MB/s,* this makes data transfers to computers easy and effortless.
- SDHC Memory Cards are inexpensive and can be easily purchased on location when needed.

* Data transfer speed varies depending on the usage of SD devices. The speed given here is the maximum speed according to Panasonic specification.

More Efficient than Tape

## Versatile Solid-state Recording Functions

**●Shot mark**
To simplify shot selection, you can add a mark to the thumbnail images of each clip. You can then display and play only the clips that have shot marks.

**●Pre-REC**
This helps to ensure you always get the shot you want, by letting you continuously store, and subsequently record, images and sounds for three seconds before the REC button is pressed in standby mode.

**●REC check**
You can check the end of the most recently recorded clip with one-touch ease.

**●Last clip delete**
Only the most recently recorded clip is deleted with this one-touch function, adding practical convenience to everyday operation. It can be assigned as a User button function if desired.

**●Meta-data recording***
The date, camera operator, location, title and other information can be added to the video data.

* In AVCHD mode only.

# Quick Response to Change in Shooting Conditions
# Assist Functions Support Professional Video Production

## DV Shooting and Recording Images
## Selected From Three Sizes

The AG-HMC80 series has three modes for shooting and recording in DV mode. It can be selected from Side crop, Letter box or Squeeze.

Image with Side crop

Image with Letter box

Image with Squeeze

## High-resolution Screen for Recorded Image Confirmation
## 6.9 cm (2.7 inch) Wide-screen EVF/LCD Monitor

The 230,000-pixels (approx.) electronic viewfinder (EVF) lets you check even fine details in the image. Raising the viewfinder instantly switches it to a 6.9 cm (2.7 inch) wide LCD monitor, so you can easily check the result after shooting. Plus, the viewfinder tilts up or down, and slides to the right or left, to provide the optimal position for use.

Lower the viewfinder for use as an EVF.

Raise the viewfinder for use as an LCD monitor.

### ●Self-portrait shooting

Self-portrait shooting is possible if the viewfinder is rotated 180° towards the lens. You can make them appear better by reversing left and right.

* Only the image display is reversed. The recorded image remains in its original orientation.

## Fast Scene Searches
## LCD Monitor Thumbnail View

Image data is recorded as a file for each scene. Thumbnail images and file information are automatically attached to each file to enable smooth, easy confirmation and deletion of files displayed on the LCD monitor.

Image in AVCHD mode

Image in DV mode

## Iris Adjustment and Zoom Operation
## Manual Focus Ring

The manual focus ring can be used to control the iris too, by switching the Focus Ring (Focus/Iris) selector. Use it whichever way best fits the shooting situation. For example, you can set the camera to Auto Focus and use the manual focus ring to control the zooming. You can also add backlight correction or spotlight correction to the auto iris function.

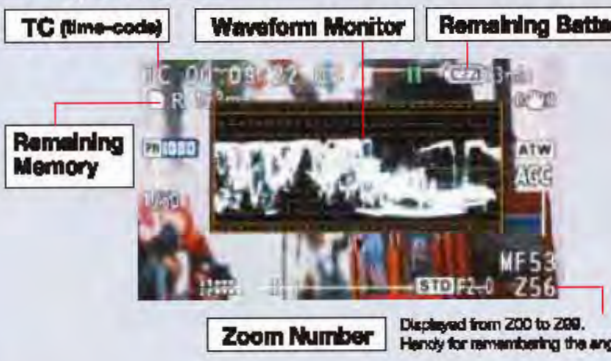
* Use the menu to select whether the ring controls the iris or the zoom.

## Adjust the Image Quality While Watching the Signal Level
## Waveform Monitor Display

A horizontal analysis of the input signal's brightness level can be displayed on the monitor. This lets you highly accurately adjust the standard black and white levels while checking the Waveform Monitor (WFM).

* WFM not displayed in "DV in" mode.

### ■ Easy-to-see LCD




## Quick, Easy Focusing
## HD Focus Assist

### ●Centre zoom/Focus bar function

The centre zoom function enlarges the centre of the frame for better visibility, and HD focus assist displays a bar that grows and shrinks to indicate the degree of focusing.

Image without a centre zoom

Image with a centre zoom

### ●Push Auto function

Pressing the Push Auto button in manual mode temporarily activates the Auto Focus (AF) system for quick focusing.

### ●Face Detection function

The AG-HMC80 series features the Face Detection function. It "recognises" faces near the centre of the screen and focuses on them.*

* The AG-HMC80 series does not offer AF tracking.

Image with Face Detection function

# Standard Definition Video Output Capability
# Diverse Interfaces Expand Applications

On-site Recording and Monitoring

## Convenient Recording Functions

### ●Interval REC

You can make automatic, intermittent recordings at set intervals from one frame per second to one frame every two minutes. For example, use Interval REC to record operations at a construction site, to shoot sunsets, or to capture time-lapse recordings of blooming.

*The maximum recording interval is 24 hours.

### ●Time stamp

You can insert time and date information into the video signal. This could be convenient, for example, when observing animals over an extended period, in certain academic uses, in surveillance, court reporting, legal depositions or law enforcement applications.

*Only for motion images.

Image with time stamp

Wide Range of Settings

## Slow Shutter and Synchro Scan Functions

The slow shutter function uses image accumulation to allow shutter speeds with frame rates reduced by half or more. The accumulation method provides bright-colour images with less noise than those captured using conventional gain-up, so you get the higher sensitivity needed for nighttime shooting without illumination. And the Synchro Scan function is ideal for capturing images on monitors.

One-touch Operation of Key Functions

## Three User Buttons

The AG-HMC80 series lets you assign any three of the following 14 functions to the three User buttons for instant access.

| | | | |
|---|---|---|---|
| ●INH | ●(PUSH) AF | ●BACKLIGHT | ●SPOTLIGHT |
| ●BLACKFADE | ●WHITEFADE | ●ATW | ●ATW LOCK |
| ●HIGH GAIN | ●D.ZOOM | ●EVF DTL | ●SHOT MARK |
| ●LAST CLIP | ●WFM | | |

## Other Professional Features

- **White balance:** 2-value memory (channel A, channel B), 2-value preset (3200k, 5600k) and Auto Tracking White (ATW).
- **Mode check:** Displays a list of the camera settings on the viewfinder and monitor.
- **Zebra:** Select any level from among 50% to 105%, in 5% steps.
- **Centre marker:** Provides an accurate numeric display of the brightness at screen centre.
- **Colour bar:** Provides a useful test pattern for setting up your monitor and 1 kHz, audio test tone.
- **TC/UB recording:** Provides a built-in SMPTE time-code generator.
- **Camera remote:** Controls zoom, REC, Focus and Iris. Allows use of any camera remote controller that is compatible with the AG-DVX100/HVX200(A)/HMC150/HMC40 series.
- **Smooth zoom step:** Use the menu to select standard or smooth zoom stopping.

Professional-level Audio

## XLR Line/Microphone Input

The AG-HMC80 series comes equipped with a built-in stereo microphone and with XLR-type audio input terminals (2 channels, mic/line switchable, 48V compatible) on the rear panel. You can switch audio channels 1 and 2 separately to either line or front microphone input, which is especially useful when recording interviews or narration.

*In addition, an external microphone terminal (3.5mm stereo mini jack) is equipped.

Standard Definition Down-conversion Output

## Recording or Playback Images

The AG-HMC80 series is equipped with HDMI (High Definition Multimedia Interface) output, component video outputs and composite output (BNC), allowing HD images to be down-converted and output as Standard Definition images while they are being recorded or played. At the same time, a 16:9 or 4:3 aspect ratio can be selected for Side crop, Letter box, or Squeeze images. Audio output (RCA terminal) enables a wide variety of applications, such as viewing on an external monitor or Standard Definition dubbing.

*AVCHD mode only.

Monitor Connection

## HDMI Output Terminal

The AG-HMC80 series is equipped with an HDMI output terminal for digital transferring of high-quality HD video and audio signals.

*AVCHD mode only.

*The AG-HMC80 series cannot output HDMI, component and composite signals at the same time. Also, a separately purchased cable may be required for connecting the AG-HMC80 series to a professional monitor.

PC Connection via

## USB 2.0 (Type B)

The standard USB terminal (Type B) allows the AG-HMC80 series to connect to a Windows PC/Mac in device mode. This lets a Windows PC/Mac installed with the provided AVCCAM Viewer software to upload, copy, and write HD video files, as well as transfer them to AVCHD-compatible editing software for HD production.
DV files can also be transferred via USB 2.0, when the camera recorder is set in AVCHD mode.

*AVCHD mode only.

Linkable with Existing Equipment

## DV Terminal Provided as a Standard Feature

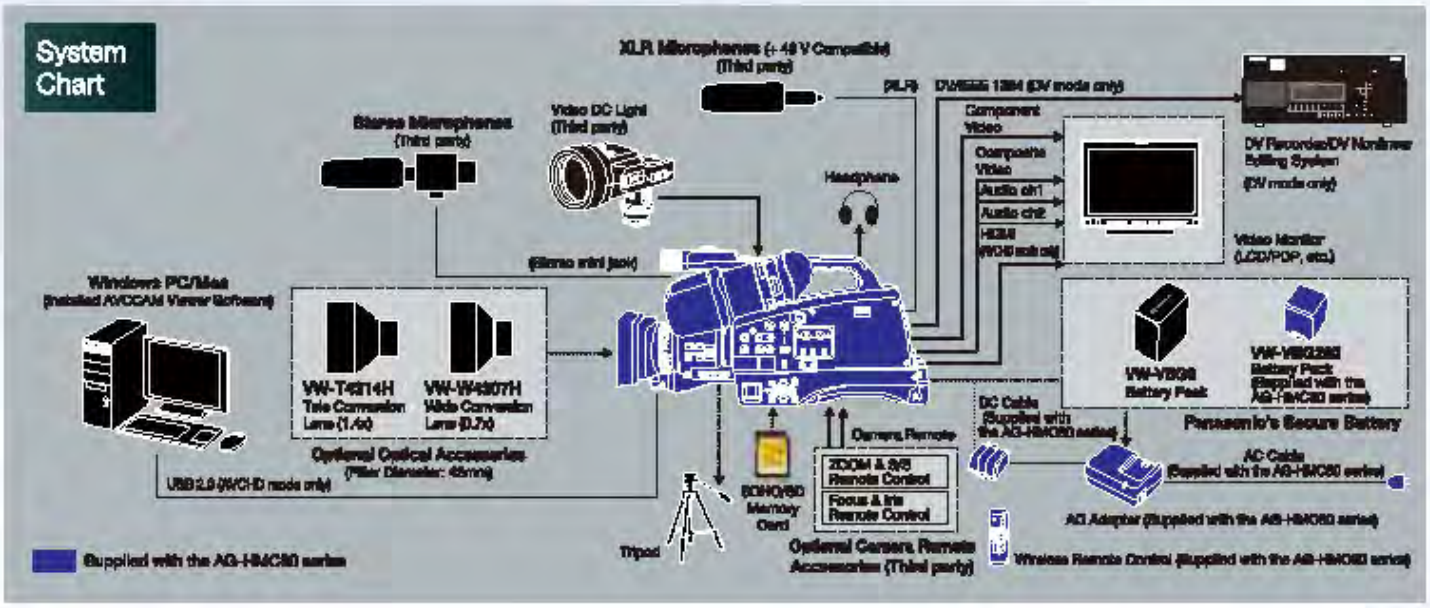
The AG-HMC80 has an IEEE 1394-compliant DV (6 pin) output terminal. Simply connect it to an editing DV nonlinear editor for transmitting its DV compression stream output.

*DV mode only.

*File transfers are not supported.

*AVCHD files cannot be converted to DV files and output via IEEE1394 (DV terminal).

* Do not connect any equipment except the remote controller to the remote control jack. Connecting any equipment other than the remote control may cause the image brightness to change and/or the images to appear out of focus.


System Chart
XLR Microphones (+ 48 V Compatible) (Third party)
Stereo Microphones (Third party)
Video DC Light (Third party)
Headphone
Component Video
Composite Video
Audio ch1
Audio ch2
HDMI (WCHD mode only)
DV Recorder/DV Nonlinear Editing System (DV mode only)
Video Monitor (LCD/PDP, etc.)
Windows PC/Mac (Installed AVCCAM Viewer Software)
VW-T4214H Tele Conversion Lens (1.4x)
VW-W4907H Wide Conversion Lens (0.7x)
Optional Optical Accessories
USB 2.0 (WCHD mode only)
VW-VBG6 Battery Pack
Panasonic's Secure Battery
DC Cable (Supplied with the AG-HMC80 series)
AC Cable (Supplied with the AG-HMC80 series)
AC Adaptor (Supplied with the AG-HMC80 series)
Camera Remote
ZOOM & IRIS Remote Control
Focus & Iris Remote Control
SDHC/SD Memory Card
Tripod
Optional Camera Remote Accessories (Third party)
Wireless Remote Control (Supplied with the AG-HMC80 series)
Supplied with the AG-HMC80 series

## A Host of Software to Support Production

### ● AVCCAM Viewer*1 (Download it for free)

AVCCAM Viewer for Windows PC/Mac*2 makes it easy to preview AVCCAM files and other AVCHD motion images, still images and meta-data, with very simple operation. Files can be played from an SDHC/SD Memory Card, BD (Blu-ray Disc™), or hard disk, and saved to a PC (hard disk) from an SDHC/SD Memory Card or BD. Files can also be copied or deleted, meta-data can be displayed, and data can be written to an SDHC/SD Memory Card or BD*3.

**[Windows PC]**
- CPU: Intel® Core™2 Duo (2.4 GHz or faster)
- OS: Microsoft® Windows® 7 (32 bit), Windows Vista® SP1 (32 bit), Windows XP SP2 or later (32 bit)
- RAM: 1024 MB or more for Windows Vista, 512 MB or more for Windows XP (1024 MB or more recommended)

**[Mac]**
- CPU: Intel® Core™2 Duo (2.6 GHz or faster)
- OS: Mac OS X 10.6 (Snow Leopard)/10.5 (Leopard)/10.4 (Tiger)
- RAM: 1024 MB or more (2048 MB or more recommended)

*1: AVCCAM Viewer doesn't support DV files.
*2: Copying and playing data on BD (BD-RE Ver3.0) are not supported by Mac OS X 10.4 (Tiger).
*3: Do not insert a disc [DVD (AVCHD)] produced with the provided HD Writer 2.5E software into a device that does not support the AVCHD standard. If it is inserted into such a device, the disc may not eject. Also, do not play the disc with a device that does not support the AVCHD standard.

### ● AVCCAM Restorer

The AVCCAM Restorer is software for restoring inconsistancies in video data recorded on an SDHC/SD Memory Card. The software mainly targets inconsistent data created under the following conditions.
-When the camera recorder fails to complete writing of the file in the normal manner due to the power being cut or the like.
-When the writing of the recorded video data to the SDHC/SD Memory Card has failed.

**[Windows PC]**
- CPU: Intel® Core™2 Duo (2.4 GHz or faster)
- OS: Microsoft Windows 7 (32 bit), Windows Vista SP1 (32 bit), Windows XP SP2 or later (32 bit)
- RAM: 1024 MB or more (2048 MB or more recommended)

**[Mac]**
- CPU: Intel® Core™ Duo (2.0 GHz or faster)
- OS: Mac OS X 10.6 (Snow Leopard)/10.5 (Leopard)/10.4 (Tiger)
- RAM: 1024 MB or more (2048 MB or more recommended)

*This software can only be used with AVCHD clips recorded with a Panasonic AVCCAM series camera.
*Note that it will not always be possible to restore the data using this software.
*This software targets recorded data that has been damaged for restoration. It is not capable of performing processing to restore deleted data.

### ● AVCCAM SD Card File Recovery (Coming soon)

The AVCCAM SD Card file recovery is software for repairing the file which was erased or formatted accidentally.

**[Windows PC]**
- CPU: Intel® Core™2 Duo (2.4 GHz or faster)
- OS: Microsoft Windows 7 (32 bit), Windows Vista SP1 (32 bit), Windows XP SP2 or later (32 bit)
- RAM: 1024 MB or more (2048 MB or more recommended)

**[Mac]**
- CPU: Intel® Core™ Duo (2.0 GHz or faster)
- OS: Mac OS X 10.6 (Snow Leopard)/10.5 (Leopard)/10.4 (Tiger)
- RAM: 1024 MB or more (2048 MB or more recommended)

*This software can only be used with AVCHD, DV and JPEG clips recorded with a Panasonic AVCCAM series camera.
*Note that it will not always be possible to repair the file using this software.

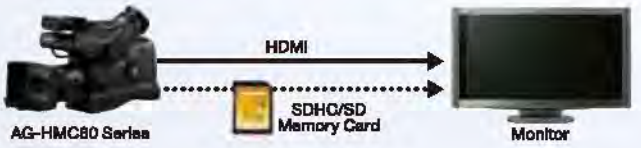
## Copying onto BDs/DVDs with BD/DVD Recorder

You can easily copy AVCHD files onto the built-in HDD of a Panasonic BD/DVD recorder. You can also copy HD images onto a BD/DVD.

*Needs to be compatible with AVCHD. BD/DVD recorder is not available in some areas.

## HD Playback on a Monitor

Full-HD images recorded in AVCHD can be previewed on a monitor.

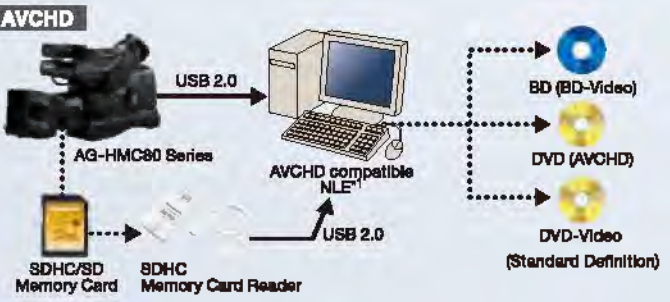



*Needs to be compatible with AVCHD playback. Use an HDMI cable with Type A terminal. (Not compatible with VIERA Link)

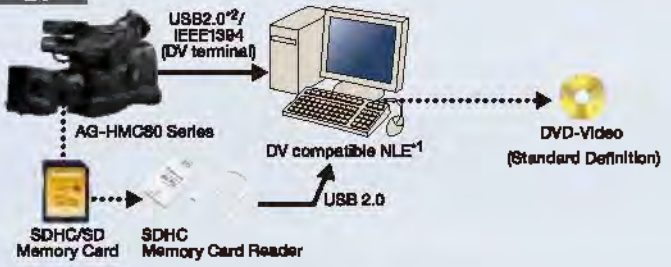
## AVCHD/DV Nonlinear Editing (NLE)

Compatibility with existing editing environments AVCHD/DV files can be transferred at high speed by using the USB 2.0 interface to connect the AG-HMC80 series or an SDHC/SD Memory Card reader to a Windows PC/Mac. This dramatically improves productivity when compared with the time-consuming task of digitising. The AG-HMC80 series can also connect to NLE compatible with DV editing via IEEE1394(DV terminal). The recorded DV files can be edited the same as a conventional tape based DV cameras/recorders.

**AVCHD**




**DV**




*1: New AVCHD/DV transcoder software is available for free downloading on the following website.
<https://www.pavc.panasonic.co.jp/pro-av/support/desk/e/download.htm>
*2: To Transfer DV files USB2.0, the camera recorder needs to be set AVCHD mode.

### Bundled*1 with EDIUS Neo 2 Booster Nonlinear Editing Software*2 (Windows PC only)

This software makes it simple and easy to edit full-HD images, and also lets you burn BDs and DVDs.

#### Features

- The EDIUS Neo 2 Booster allows for real-time, native editing of AVCHD video.
- Without special hardware, AVCHD codec engine can process more than 3 real-time streams simultaneously. (tested with an Intel® Core™ i7 CPU system)
- It supports Windows 7.

**[PC Minimum System Requirements]**
- CPU: Intel® or AMD CPU 3.0 GHz or faster (Multiple CPUs or multi-core CPUs are recommended. SSE2 and SSE3 instruction sets supported. Intel® Core™2 Duo or faster required for real time AVCHD editing– Core™ i7 recommended.)
- OS: Microsoft Windows 7 (32 bit/64 bit) (Home Premium/Professional/Ultimate) Microsoft Windows Vista SP1 (32 bit/64 bit) (Home Basic/Home Premium/Business/Ultimate), Windows XP SP2 or above (32 bit) (Home/Professional)
- RAM: 1 GB or more (2 GB or more recommended)

*1: Limited time offer. The package model number is AG-HMC81EU/HMC82ENU/HMC83MCU/HMC84ERU
*2: Only the EDIUS Neo 2 Booster install disc is bundled with this package. The Bonus Content CD is not included with the bundle version. Also, PASS registration is required to install the software.

**For more details, please visit the following website:**
<http://pro-av.panasonic.net/ (Starting AVCCAM EDIUS Neo 2 Booster Bundle Sales)>

**For details about EDIUS Neo 2 Booster, please visit:**
<http://www.grassvalley.com/products/edius_neo_2_booster>

AVCCAM Viewer, AVCCAM Restorer and AVCCAM SD Card Recovery software can be downloaded for free from the following Panasonic website. PASS registration is required.
For details, please visit the following website and click on "Support and Downloading Information." <https://www.pavc.panasonic.co.jp/pro-av/support/desk/e/download.htm>

## Options

As of August 2010

**VW-VBG260**

Battery Pack
• 7.2V 2,640mAh
(Supplied with the AG-HMC82 series)

**VW-VBG6**

Battery Pack
• 7.2V 5,500mAh

**VW-W4307H**

Wide Conversion Lens

**VW-T4314H**

Tele Conversion Lens

*These options are not available in some areas.

## Specification

As of August 2010

### [GENERAL]

| | |
|---|---|
| Power Supply: | DC7.2 V (using with battery), 7.9 V (using with AC adapter) |
| Power Consumption: | 11 W |
| Operating Temperature: | 0 °C to 40 °C |
| Operating Humidity: | 10 % to 80 % (No condensation) |
| Weight: | Approx. 3.2 kg (camera recorder only)<br>Approx. 3.8 kg (including SD Memory Cards, supplied battery) |
| Dimensions (W x H x D): | 267 mm x 293 mm x 458 mm excluding the projection part |

### [CAMERA]

| | |
|---|---|
| Pick-up Device: | 3MOS 1/4.1 type progressive modes supported |
| Picture Elements: | Total: Approx. 9.06 megapixels x 3<br>Effective (video): Approx. 2.61 megapixels x 3 (16:9)<br>Effective (still image): Approx. 2.32 megapixels x 3 (4:3),<br>Approx. 2.65 megapixels x 3 (3:2), Approx. 2.61 megapixels x 3 (16:9) |
| Lens: | Lens with optical image stabilizer,<br>motorized/manual mode switching,<br>12x zoom, F1.8 to 2.9 (f=4.0 mm to 48 mm)<br>35 mm equivalent (video): 40.8 mm to 490 mm (16:9)<br>35 mm equivalent (still image): 41.3 mm to 496 mm (3:2),<br>40.8 mm to 490 mm (16:9), 46.0 mm to 540 mm (4:3) |
| Filter Diameter: | 43 mm |
| Optical Colour Seperation: | Prism system |
| ND Filter: | Automatic On/Off interlock with iris |
| Minimum shooting distance: | Approx. 0.9 m |
| Gain Selection: | <Motion image> 0 dB to 24 dB (Variable in 1 dB step;<br>USER button allocation; up to 34 dB using the High Gain setting)<br><Still image> 0 dB to 18 dB (Variable in 1 dB step) |
| White balance: | ATW, ATW LOCK, preset 3200 K, preset 5600 K, Ach or Bch |
| Shutter Speed: (Preset) | <Motion image> 50i/50p mode: 1/50 sec. to 1/2000 sec. (7 steps)<br>25p mode: 1/25 sec. to 1/2000 sec. (8 steps)<br><Still image> 1/2 sec. to 1/2000 sec. (16 steps) |
| Shutter Speed: (Synchro Scan) | 50i/50p mode: 1/50.0 sec. to 1/250.0 sec.<br>25p mode: 1/25.0 sec. to 1/250.0 sec. |
| Slow Shutter Speed: | 50i/50p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec., 1/25 sec.<br>25p mode: 1/2 sec., 1/3 sec., 1/6 sec., 1/12 sec. |
| Minimum Luminance: | Approx. 1 lx (Gain: 34dB, Slow Shutter: 1/2 sec.) |
| Digital Zoom: | 5x/10x<br>(Assigned to the USER button, for switching zoom levels. Only available for 1080/50i, 720/50p, 576/50i) |

### [Video Recording (AVCHD mode)]

| | |
|---|---|
| Recording Format: | AVCHD |
| Compression Method: | MPEG-4 AVC/H.264 |
| Recording Media*1: | SD Memory Card : 512 MB, 1 GB, 2 GB (FAT12, FAT16)<br>SDHC Memory Card : 4 GB, 8 GB, 8 GB, 12 GB, 16 GB, 32 GB (FAT32) |
| Recording Video Format: | PH mode: 1080/50i, 1080/25p (over 50i), 720/50p, 720/25p (over 50p)<br>HA, HG and HE mode: 1080/50i only |
| Transmission Rate: | PH mode: Approx. 21 Mbps (VBR)<br>HA mode: Approx. 17 Mbps (VBR), HG mode: Approx. 13 Mbps (VBR)<br>HE mode: Approx. 6 Mbps (VBR) |
| Recording Time: | Approx. 180 minutes<br>(in PH mode with 1920 x 1080 pixels and using a 32 GB SDHC Memory Card) |
| Interval REC*2: | 1 sec. / 10 sec. / 30 sec. / 1 min. / 2 min. / OFF |
| SD Memory Card: | Max. recordable clips per card: 900<br>(after formatting, without removing/inserting the card)<br>Max. playable clips: 1,000 (up to 1,000 clips displayed) |
| Thumbnail View: | 9 frames/page |
| Editing Functions: | Delete, write-protect |
| Formatting Function: | Yes |

### [Video Recording (DV mode)]

| | |
|---|---|
| Recording Format: | DV |
| File Format: | AVI Type2 |
| Recording Media*3: | SD Memory Card: 512 MB, 1 GB, 2 GB (FAT12, FAT16)<br>SDHC Memory Card: 4 GB, 8 GB, 16 GB, 32 GB (FAT32) |
| Recording Video Format: | 576/50i, 576/25p (over 50i) |
| Recording Time*4: | Approx. 120 minutes (in DV mode, using a 32 GB SDHC Memory Card) |
| Interval REC*4: | 1sec. / 10sec. / 30sec. / 1min. / 2min. / OFF |
| SD Memory Card: | Max. recordable clips per card: 999 (after formatting, without removing/inserting the card)<br>Max. playable clips: 999 (up to 999 clips displayed) |
| Thumbnail View: | 12 frames/page |
| Editing Functions: | Delete |
| Formatting Function: | Yes |

### [Still Picture*5]

| | |
|---|---|
| Compression Method: | JPEG (DCF/Exif 2.2 standard), DPOF |
| Recording Media: | SD Memory Card: 8MB, 16MB, 32MB, 64MB, 128MB,<br>512MB, 1GB, 2GB (FAT12, FAT16)<br>SDHC Memory Card: 4GB, 6GB, 8GB, 12GB, 16GB, 32GB (FAT32) |
| Recording Pixels: | [4:3] 9 megapixels / 8 megapixels / 5 megapixels / 0.3 megapixels<br>[3:2] 10.8 megapixels / 7 megapixels / 4.5 megapixels<br>[16:9] 10 megapixels / 6 megapixels / 3.5 megapixels |
| Quality: | Fine/Normal |
| Flash Function: | No |
| Number of Recordable Still Pictures*6 (approx): | [4:3] 6030 (9M 3620 x 2640 pixels)*7<br>[3:2] 5300 (10.8M 3864 x 2856 pixels)*7<br>[16:9] 5580 (10M 4224 x 2376 pixels)*7 |

### [Video System (AVCHD mode)]

| | |
|---|---|
| Video Signals: | 1080/50i, 720/50p |
| HDMI Output: | HDMI x 1 (HDMI Type A terminal), 1080/50i, 720/50p, 576/50p<br>(Not compatible with VIERA Link) |
| Component Output: | BNC x 3, Y: 1.0 V [p-p], 75 Ω, Pb/Pbc 0.7 V [p-p], 75 Ω |
| Composite Output*8: | BNC x 1, 1.0 V [p-p], 75 Ω |

### [Video System (DV mode)]

| | |
|---|---|
| Video Signals: | 576/50i |
| Component Output | BNC x 3, Y: 1.0 V [p-p], 75 Ω, Pb/Pbc 0.7 V [p-p], 75 Ω, 576/50i |
| Composite Output*8: | BNC x 1, 1.0 V [p-p], 75 Ω |

### [Audio System (AVCHD mode)]

| | |
|---|---|
| Compression Method: | Recording/Playback: Dolby Digital (2 ch) |
| Sampling Frequency: | 48 kHz |
| Quantization: | 16 bit |
| Compression Bit-rate | PH mode: 384 kbps,<br>HA, HG and HE mode: 256 kbps |

### [Audio System (DV mode)]

| | |
|---|---|
| Video Signals: | Recording/Playback: Linear PCM (Digital/2 ch) |
| Sampling Frequency | 48 kHz |
| Quantization | 16 bit |

### [Audio IN/OUT]

| | |
|---|---|
| XLR Input: | XLR (3 pin) x 2 (CH1, CH2), High Impedance LINE/MIC switching,<br>LINE: 0 dBu, MIC: -60/-50 dBu (menu switching), MIC + 48 V ON/OFF (switching) |
| Internal Microphone: | Stereo microphone |
| Audio Output: | Output: 316 mV, 600 Ω, pin jack x 2 (ch1, ch2) |
| HDMI Output (AVCHD mode only): | 2 ch (Linear PCM), 5.1 ch (Dolby Digital) |
| Headphone: | Stereo mini jack (3.5 mm diameter) x 1, -16 dBV (with 32 Ω load, Monitor VR max) |
| Internal Speaker: | 20 mm (round) x 1 |
| External Microphone Input: | -70 dBV (Mic sensitivity: -60 dB equivalent, 0 dB=1 V/Pa 1 kHz)<br>Stereo mini jack (3.5 mm diameter)<br>(Not compatible with plug-in power microphone) |

### [Other Connections]

| | |
|---|---|
| USB (AVCHD mode only): | Card reader function(no copyright protection support),<br>USB Type B connector, USB 2.0-compliant, PictBridge-compatible |
| CAM REMOTE: | Super mini jack (2.5 mm diameter) (ZOOM, S/S),<br>Mini jack (3.5 mm diameter) (FOCUS, IRIS) |
| DV (DV mode only): | 6 pin (IEEE1394 format compliant), digital input/output |

### [Viewfinder]

| | |
|---|---|
| LCD Monitor: | 9.9 cm (3.7 inch) wide-type LCD colour monitor (approx. 230,000 pixels) |

### [Standard Accessories]

AC adapter/charger, 2640 mAh battery pack (secure type), AC cable, DC cable (catch type), Wireless remote controller with button-type battery, Eye cup, Shoulder Strap, CD-ROM, AVCCAM Restorer (Windows PC/Mac)
The following accessories are attached to the unit.
Large-sized lens hood with wide angle of view, Lens hood cap, XLR audio adaptor cap

*1: SDHC/SD Memory Card (8 MB to 32 GB) can be used for storing/loading scene file and user file, and reading metadata. SDXC Memory Cards cannot be used with this product.
*2: Records only in PH mode, 1080/25p. The maximum recording interval is 24 hours.
SDXC Memory Cards cannot be used with this product.
*3: A Class 6 or higher SDHC or SD Memory Card is required for DV recording.
*4: Records only 576/50i. The maximum recording interval is 24 hours.
*5: Still shot is not available in DV mode.
*6: The number of recordable still pictures varies depending on the subject and whether both Fine and Normal mode pictures are included.
*7: Fine mode, using a 32 GB SDHC Memory Card.
*8: Shares analog component terminal (Y terminal) (SW switching).
Analog component signals and composite signals cannot be output at the same time.
*Weight and dimensions shown are approximate. Specification is subject to change without notice.

# P2 Asset Support System The member's service program

## Providing valuable information when you need it

P2 Asset Support System assists your AVCCAM use by providing extended warranty repair & various technical information (update notices, operation guides, etc.) upon registration.

### Free registration, no membership fees

#### ■ 3-year extended warranty repair program

Exclusive offer for AVCCAM!
Maximum 3-year extended warranty repair is applied for AVCCAM models after registration. Several other services are also provided to members.

| 1st year | 2nd year | 3rd year |
|---|---|---|
| Basic warranty*1 | AVCCAM Extended warranty repair*2 | |

#### ■ Latest news only for you

In the member's website, information is selected and presented for your models. To be alerted to new firmware information and other releases, an email newsletter can be subscribed to.

#### ■ Document library

You can browse through and find various technical information (operation guides, technical descriptions, etc.) quickly from the library.

#### ■ Manage your equipment

You can easily know the update status and past service history of each unit, and can leave comments in free text as memos about your equipment.

* Not all models are eligible for extended warranty coverage.
* Please note that this extended warranty is not available in some countries/regions. See the website below for details.

*1: The basic warranty period may vary depending on the country/region. See the enclosed warranty card for warranty coverage.
*2: Not all repair work is covered by this extended warranty. See the enclosed warranty card for warranty coverage.
The maximum warranty period may be adjusted depending on the number of hours the device has been used.

Details and user registration: **http://panasonic.biz/sav/pass_e**

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Please refer to the latest Nonlinear Compatibility Information, AVCHD Support and Download and Service Information, etc. at panasonic website.

**http://pro-av.panasonic.net/**

**Panasonic**

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**[Countries and Regions]**

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| Belgium | +32 (0) 2 481 04 57 |
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| Denmark | +45 43 20 08 57 |
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Factories of Systems Business Group have received ISO14001:2004-the Environmental Management System certification. (Except for 3rd party's peripherals.)

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